What is claimed is:

1. An image display apparatus comprising:

a display element that displays a picture;

a projecting optical system that forms a real image of the picture; and

a diffusive hologram screen disposed at a position of the real image or in a vicinity thereof,

wherein the diffusive hologram screen has a predetermined directionality, to thereby introduce, when an operator uses the image display apparatus held in his hand, the picture displayed on the image display element exclusively into a pupil of the operator.

2. An image display apparatus according to claim 1, wherein the following condition is satisfied:

$$0.01 < Y/D < 2.7$$

where D is a distance from the diffusive hologram screen to the pupil of the operator, and Y is a diameter of an observable region.

3. An image display apparatus according to claim 1, wherein the following condition is satisfied:

$$0.3 \text{ deg.} < \theta < 54.0 \text{ deg.}$$

where θ is a value of full width at half maximum in a graph that presents a diffusion characteristic of the diffusive hologram screen.

4. An image display apparatus according to claim 1, wherein the following condition is satisfied:

$$0.3 \text{ deg.} < \delta < 54.0 \text{ deg.}$$

where δ is an angle formed by a direction in which a diffusion characteristic at a center of the diffusive hologram screen is maximum and a direction in which a diffusion characteristic at a peripheral position farthest from the center of the diffusive hologram screen is maximum.

5. An image display apparatus according to claim 1, wherein at least one of optical elements constituting the projecting optical system has a free-formed surface.

6. An image display apparatus according to claim 1, wherein the diffusive hologram screen is a reflection-type one.

7. An image display apparatus according to claim 1, wherein the diffusive hologram screen is a transmission-type one.

8. An image display apparatus according to claim 1, wherein a screen surface of the diffusive hologram screen is shaped as a plane surface.

9. An image display apparatus according to claim 1, wherein a screen surface of the diffusive hologram screen is a curved surface.

10. An image display apparatus according to claim 1, wherein the diffusive hologram screen is arranged in such a manner that a screen surface thereof is tilted in reference to the operator and is perpendicular to an axial chief ray of the projecting optical

system.

11. A personal data assistant comprising:

an image display apparatus according to claim 1;

operation buttons via which the operator inputs and outputs data from an external;

a data processor connected with the operation buttons;

a storage device connected with the data processor; and

a transceiver unit connected with the data processor.

12. A cellular phone comprising:

an image display apparatus according to claim 1;

operation buttons via which the operator inputs and outputs data from an external;

an audio input unit for inputting audio data derived from the operator; and

an audio output unit for outputting audio data transmitted from a mate correspondent of the operator.